

S/148/61/000/012/007/009  
E193/E385

The effect of ....

$\chi_{Fe_2C} \rightarrow Fe_3C$  transformation, whereas the variation in these properties during tempering of cold-worked steel with granular cementite is associated only with the variation in the state of stress in the  $\alpha$ -phase. This difference provides an explanation of the character of the softening process during tempering of hardened and cold-worked specimens. The variation in hardness of cold-worked steel with granular cementite practically ceases at 550 °C (Curve 3 in Fig. 35). The relatively slow rate of decrease in hardness of hardened and cold-worked specimens of steel with lamellar cementite can be attributed to hardening of the  $\alpha$ -phase caused by carbide transformation. Thus, it can be concluded that the similarity in the variation of the fine structure of hardened and cold-worked steel with lamellar cementite is closely associated with the  $\chi_{Fe_2C} \rightarrow Fe_3C$  transformation. Approximately 50% of the carbide phase undergoes this transformation, which obviously is accompanied by a change in the conditions at the carbide/ $\alpha$ -phase boundaries.

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S/140/61/000/C12/C07/009

E195/E533

The effect of ....

As a result, the stability of the mosaic structure of the  $\alpha$ -phase is destroyed, which leads to the onset of plastic slip in the crystal lattice, causing fragmentation of blocks and/or inhibiting their growth. These processes, in turn, cause a similar variation in the coercive force and similar character of the softening process during tempering. The results of the present investigation are correlated with those obtained by other workers and it is suggested that changes in other properties (intensity of magnetization, specific volume, etc.) are also affected to a greater or lesser extent by the carbide transformation. On the other hand, this does not apply to specific heat, whose variation is more likely associated with the relief of stresses of the second type in the  $\alpha$ -phase lattice. There are 7 figures and 23 references: 20 Soviet-bloc and 3 non-Soviet-bloc. The three English-language references mentioned are: Ref. 12: Osada, Arato - J. Japan Inst. Metals, v.19, no. 2, 1955; Ref. 22: G.I. Taylor, H. Quinney - Proc. Roy. Soc., 1954, 143, 307; Ref. 23: T. Sato - Sci. Rep. Imp. Univers., 1951, 20, 1.

Card 7/8 7

SYSUYEV, Yu.A.; KOTKIS, M.A.; AFANAS'YEVA, V.K.

Carbide transformations during the deformation and subsequent  
of plain carbon steels. Fiz. met. i metalloved. 12  
no.4:513-518 61. (NIRA 14:11)

APPROVED FOR RELEASE: 08/31/2001

CIA-RDP86-00513R001654320009-1"

1. Gor'kovskiy issledovatel'skiy fiziko-tekhnicheskiy institut  
i Gor'kovskiy avtomobil'nyy zavod.  
(Steel—Metallography)  
(Phase rule and equilibrium)

S/032/61/027/004/005/028  
S110/S215

AUTHORS: Apayev, B. A. and Sysuyev, Yu. A.

TITLE: Dimensions and shapes of test specimens for magnetometric studies

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 4, 1961, 414-416

TEXT: Intensity of magnetization in quantitative magnetometric examinations depends on the demagnetization factor which is a function of shape, dimensions, and structure of the specimen. Two series (I) and (II) of specimens of Y 10 (U 10) steel were produced: series (I) with different lengths and equal diameters, (II) with different diameters and equal lengths. D. S. Shteynberg's magnetometer with ballistic measuring scheme was used. Experimental results showed the saturation of the specimen attainable in practical application at a field tension of  $H = 8000$  oersteds which was used for several experiments. Fig. 2 shows the dependence of magnetization intensity on the dimensions of the specimen. Saturation is practically obtained at a ratio of  $l/d > 10$  at 8000 oersteds. A ratio of  $l/d \geq 10$  is required for quantitative determina-

✓

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Dimensions and shapes of test...

S/032/61/027/004/005/028  
B110/B215

tions of carbon steels with a C content  $\leq 1.0\%$ . These dimensions are also suitable for magnetic saturation of low- and medium-alloy steels at 8000 oersteds. At 20 and 300°C, the intensity of magnetization was found to be proportional to the cross-sectional area (Fig. 26). In specimens of different diameters, the linear dependence of  $J_s(S)$  allowed a quantitative

comparison of measurements, and the reduction to a standard specimen. The method of Ref. 1 (B. A. Apayev, B. M. Yakovlev; Fizika metallov i metallovedeniye. 10, 4 (1960)) was used to calculate phases according to the magnetogram. For the examination of practical specimens of irregular geometric shapes it is necessary to know the magnetization intensity ( $J_s$ )

of phase components of the examined system, and the fraction of the intensity of magnetization ( $\Delta\alpha_i$ ) of comparable specimens at equal

temperatures. Should there be a number of ferromagnetic phases, the percentage by volume ( $P_i$ ) of the phases according to the principle of additivity is as follows:  $P_1 = (\Delta\alpha_1/\alpha_1) \cdot 100\%$ ;  $P_2 = (\Delta\alpha_2/\alpha_2) \cdot 100\%$ ; .....

$P_i = (\Delta\alpha_i/\alpha_i) \cdot 100\%$   $\sum_i P_i = 100$ , (1) with  $\alpha_1, \alpha_2, \dots, \alpha_i$  standing for the

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S/032/61/027/004/005/028  
B110/B215

Dimensions and shapes of test...

specific intensity of magnetization expressed in mm on the galvanometer scale, and  $\Delta\alpha_1, \Delta\alpha_2, \dots, \Delta\alpha_i$  the fractions of magnetization of phases 1, 2, ..., i taken from the magnetogram. By using the ballistic magnetometer in saturated magnetic fields, the following equation is obtained:  
 $\alpha_1/\alpha_i = J_1/J_i; \alpha_2/\alpha_i = J_2/J_i; \dots, \alpha_{i-1}/\alpha_i = J_{i-1}/J_i$  (2). From (1) and (2), we obtain for the specific magnetization:

$$\alpha_i = \Delta\alpha_i + \Delta\alpha_1 \cdot (J_1/J_i) + \Delta\alpha_2 \cdot (J_2/J_i) + \Delta\alpha_3 \cdot (J_3/J_i) + \dots + \Delta\alpha_{i-1} \cdot (J_{i-1}/J_i).$$

Example: the carbon content of a specimen of any dimensions of hardened Y 10 (U 10) steel is to be determined (Fig. 4). In the course of the magnetogram ferrite and cementite were found to be constituents. Extrapolation of the ferrite section of the curve for room temperature yields the quantities  $\Delta\alpha_f$  and  $\Delta\alpha_c$ . At room temperature,  $J_f$  (of ferrite) ✓

= 1685 oersteds,  $J_c$  (of cementite) = 923 oersteds. From formulas (1) and

(3) a carbon content of 1.018% was obtained. It differed from the analytical value of 0.99% by 0.028%. There are 4 figures and 3 references: 2 Soviet-bloc and 1 non-Soviet-bloc.

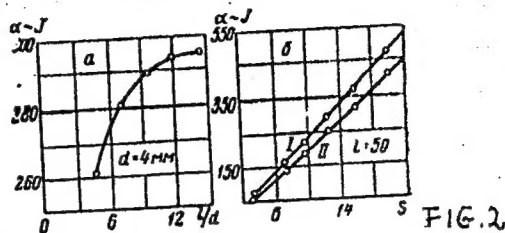
Card 3/5

S/032/61/027/004/005/028  
B110/B215

Dimensions and shapes of test...

ASSOCIATION: Gor'kovskiy issledovatel'skiy fiziko-tekhnicheskiy institut  
(Gor'kiy Physical and Technical Research Institute)

Legend to Fig. 2: Change in intensity of magnetization as dependent on length (a) and diameter (b) of the specimen at 20°C (I) and 300°C (II).



Card 4/5

TYLKIN, M.A., kand. tekhn. nauk; MEL'NICHENKO, G.P., inzh.; KORDABNEV  
I.L., inzh.; ZASPITSKIY, N.A., inzh.; GREBENIK, V.M., kand. tekhn.  
nauk; SYSUYEV, Yu.A., kand. tekhn. nauk; SVETOCAROV, A.V., inzh.

Temperature of the double-walled bell in the charging equipment.  
Stal' 25 no.12:1079-1080 D '65. (MIRA 18:12)

SYSUYEVA, A.F. [Sysulova, A.F.]

Bacteria mineralizing organic substances in water and soil  
of Kremenchug Reservoir during its 2 years of existence. Mikro-  
biol. zhur. 26 no.2:88-92 '64. (MIRA 18:8)

1. Institut gidrobiologii AN UkrSSR.



SYSUYEVA, A.F. [Sysuieva, A.F.]

Diurnal fluctuations of the vertical distribution of  
bacteria in the water of Kremenchug Reservoir. Mikrobiol.  
zhur. 25 no.3:46-48 '63. (MIRA 17:1)

1. Institut mikrobiologii AN UkrSSR.

SYSUYEVA, A.F. [Sysuleva, A.F.]

Bacteria of the carbon cycle in water and soils of Kremchug Reservoir.  
Mikrobiol. zhur. 26 no.5:36-40 '64. (MIRA 18:7)

1. Institut gidrobiologii AN UkrSSR.

AUTHORS: Tager, A. A., Smirnova, A.,  
Sysuyeva, N.

SOV/156-58-1-33/46

TITLE: The Density of Packing of Polymers and the Volume Change  
Connected With Their Dissolution (Plotnost' upakovki polimerov  
i izmeneniye ob'yema pri ikh rastvorenii)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya  
tekhnologiya, 1958, Nr 1, pp. 135 - 138 (USSR)

ABSTRACT: The results obtained from the investigations of different  
properties of polymeric substances prove that - according to  
the chemical structure and the physical state - the polymers  
may have both a dense and a loose packing. It may be expected  
that the difference in the density of packing will act on the  
change of its volume connected with dissolution. In a general  
case the change of volume connected with the mixing of two  
components may be attributed to 3 causes: 1) to the difference  
of the energies of interaction in an isolated state and in  
the mixture, 2) to the difference between the molecular size  
of the components and 3) to the difference in the densities of  
packing of the molecules. In order to eliminate the first  
factor, it is advisable to investigate the change of volume

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The Density of Packing of Polymers and the Volume  
Change Connected With Their Dissolution

SOV/156-58-1-33/46

taking place with the mixing of components which have a similar chemical structure. If the liquids are related also with respect to the factors 2) and 3), no change of volume must take place at mixing. The authors selected 2 polymers which are different both with respect to their chemical structure and to their physical state: poly-isobutylene and polystyrene. In order to eliminate the influence exercised by the chemical structure of the solvent, such solvents were selected which are closely related to the polymer: ethyl-benzene for polystyrene and n-heptane for poly-isobutylene. The results obtained are shown in figure 1. It hence results that in the polystyrene-ethyl-benzene system a greater compression is observed than in the poly-isobutylene-isooctane system. It results from figure 2 that a considerable compression takes place in the polystyrene-benzene- and polystyrene-toluene systems. An analogous picture is found in the polystyrene-cyclo-hexanon system. In connection with this, the compression in the poly-isobutylene-benzene and poly-isobutylene-toluene systems is as small as in the poly-isobutylene-n-heptane systems (Fig 3). These data show clearly that in connection

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The Density of Packing of Polymers and the Volume  
Change Connected With Their Dissolution

SOV/156-58-1-33/46

with the dissolution of a loosely packed polymer a greater compression takes place than with the dissolution of a densely packed polymer. Figure 4 shows data for a series of co-polymers of butadiene and styrene. Benzene was used as solvent. In connection with the dissolution of a co-polymer with 90% styrene-members a strong compression takes place which indicates a loose packing of this polymer. The compression decreases as the increasing number of the butadiene-members in the macromolecule. This signifies that the density of co-polymers increases as the decrease of the phenyl substituents. There are 4 figures and 3 references, 2 of which are Soviet.

ASSOCIATION: Kafedra fizicheskoy khimii Ural'skogo gosudarstvennogo universiteta im.A.M.Gor'kogo (Chair of Physical Chemistry at the Ural State University imeni A.M.Gor'kiy)

SUBMITTED: October 16, 1957

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The Density of Packing of Polymers and the Volume  
Change Connected With Their Dissolution

SOV/156-58-1-33/46

Card 4/4

ZABOLOTNOVA, Z.I.; SYSUYEVA, Ye.S.

Use of the EM-1 express moisture gauge for determining the moisture content of various materials. Der.prom. 10 no.2:24 F '61.

(MIRA 14:3)

1. Tsentral'naya nauchno-issledovatel'skaya laboratoriya spicheschnoy promyshlennosti.

(Moisture—Measurement)

CZECHOSLOVAKIA / Chemical Technology. Chemical Products H  
and Their Applications. Synthetic Polymers.  
Plastics.

Abs Jour: Ref Zhur-Khimiya, 1959, No 4, 13750.

Author : Hudecek, Slavko; Chromocek, Richard; Sytar, Milo-  
slav.

Inst : Not given.

Title : Obtaining Ionites by Beaded Polycondensation.

Orig Pub: Chem. prumysl, 1957, 7, No 9, 514-517.

Abstract: Ionites in the form of pellets, similar in size,  
were obtained by beaded polycondensation during  
emulsification of a reaction mixture in an inert  
medium (vaseline or transformer oil). A decrease  
in the dimensions and uniformity of the pellets  
is aided by an increase in the mixing rate, bringing  
the density of the inert medium up to the density of

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Card 2/2

131



Vacuum-sampling device. František Lešek and Miloš  
Sytar. *Chem. Tech. (Berlin)* 10, 421(1958).—A device for  
removing liquid samples from a reaction vessel under  
vacuum, without disturbing the vacuum, is described.  
Robert E. Adamsky

JW  
11

3

NI

SYTAR, M.

1

Nonexplosive acetyl benzoyl peroxide. Prantšek  
Juračka, Prantšek Lšek, and Miloslav Sytar. Czech.  
88,810, Feb. 15, 1959. When 200 g. reaction-soln., ob-  
tained according to Czech. 85,196 (C.A. 50, 10702g) contg.  
40.5% title compd. (I), was mixed with 2000 ml. H<sub>2</sub>O and  
the mixt. stirred 10 min., the temp. rose from 12° to 21°  
and an oil sepd. Approx. half of the acid turbid aq. super-  
natant was filtered off, 1000 ml. H<sub>2</sub>O added, and the mixt.  
stirred 5 min. After 10 min. I became cryst.; the aq. layer  
was sepd. and the I in H<sub>2</sub>O treated with warm (40°) 10%  
NaHCO<sub>3</sub> soln. (400 ml.) which caused melting of the  
crystals. The resulting soln. stirred 5 min., 80 g. di-Bu  
phthalate added, the mixt. stirred another 5 min., the upper  
NaHCO<sub>3</sub> layer discarded, the di-Bu phthalate layer washed  
twice with 500 ml. H<sub>2</sub>O, the H<sub>2</sub>O carefully sepd., and the  
residue passed over 200 g. silica gel to remove the last  
traces of moisture gave 154 g. soln. contg. 48.6% I, the  
recovery of I being 92.5%.  
L. J. Urbánek.

4  
+ 92 (DB)

81  
81/1  
SS

Z/009/60/000/01/035/038  
E142/E235

AUTHORS: Lešek, F., Sytař, M and Chromeček, R 1  
TITLE: The Preparation of Ion Exchange Resins by Pearl  
Polycondensation - Relation Between the Basic Hydrodynamic  
Parameters and the Size of the Apparatus  
PERIODICAL: Chemický průmysl, 1960, Nr 1, pp 50-53

ABSTRACT: The authors investigated conditions for the pearl polycondensation of the ion exchange systems FN, MFD and L, and derived as first approximation the rule of the required number of rotations of the agitator. The method of the experiment was described in an earlier publication (Ref 10). The same type of reactor and agitator (Fig 1) was used for all experiments as well as the same suspension stabiliser; only in the case of the cation exchange resin FN the granules were homogenised before pouring into an inert medium as basic components of this exchange resin are viscous. The dependance of the basic parameters on the size of the apparatus, i.e. on the diameter of the granules, their distribution and temperature conditions were investigated for the three above-mentioned ion exchange resins and for a styrene-butadiene copolymer. The capacity of the reactor varied

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The Preparation of Ion Exchange Resins by Pearl Polycondensation -  
Relation Between the Basic Hydrodynamic Parameters and the Size of  
the Apparatus

between 350 litre and 1 200 litre but the ratio of the agitator to the reactor remained constant. Experimental results show that a constant value of the Froude number should be maintained for mixing systems with a "vortex" motion of the liquid mixture. The initial value should be verified in a reactor with a minimal diameter of 300 mm. A more satisfactory distribution of the granules is obtained in larger apparatus. Temperature conditions during polycondensation can be adjusted by decreasing the temperature and extending the reaction time. These rules are not applicable in general, but give useful indications for the regulation of suspension polycondensation reactions. There are 6 figures and 13 references, 8 of which are English and 5 Czech.

ASSOCIATIONS: Výzkumný ústav syntetických pryskyřic a laků, Pardubice  
(Research Institute for Synthetic Resins and Lacquers,  
Pardubice) Spolek pro chemickou a hutní výrobu, Ústí n.  
Labem (Association for Chemical and Mining Industry,  
Ústí nad Labem)

SUBMITTED: July 1, 1959  
Card 2/2

SYTAR, M.

1 5  
/ Preparation of ion-exchange resins by pearl polycondensation. Relation between fundamental hydrodynamic parameters and the size of apparatus. František Lešek, Miloš Sytaň, and Richard Chromček (Výzk. úst. synt. pryskyřic láků, Pardubice, Czech.). *Chem. průmysl* 16, 80-3 (1966).

—The dependence has been established of the conditions of the pearl polycondensation for the prepn. of ionex brands on the size of the app., the reaction being studied in reactors with a content ( $v_m$ ) up to 350-1200 l., the shape of the stirrer and reactor being the same in all expts. From the results obtained the authors recommend for  $v_m > 65$  l. and for a vortex movement of the liquid to use such r.p.m. at which the Froude no. ( $Fr$ ) is const., the value of  $Fr$  being dependent on the size of particles and on the resin produced. With increasing  $v_m$  the reaction temp. should be decreased and consequently the time of reaction increased. The distribution of the particles becomes better at greater  $v_m$ .

J. Šebenda

ER

SYTAR, Miroslav, inz.

Synchronous motors for 10 kW voltage made by the Ceskomoravska-Kolben-Danek. El tech obzor 52 no.3:140-141 Mr '63.

1. Ceskomoravska-Kolben-Danek Praha, n.p.

SIKL, O.;SYTAROVA, J.

Bacterial flora of the uterus in puerperium. *Cesk. gyn.* 17 no.11-12:643-648 1952.  
(CJML 23:4)

1. Of the First Obstetric-Gynecological Clinic (Head--Prof. L. Havlasek, M. D.) of Masaryk University, Brno and of the Institute of Microbiology (Head--Prof. V. Tomasek, M.D.) of District Clinical Hospital in Brno.

KUTHAN, Frantisek; SYTAROVA, Josefa

Hemagglutination test in progressive chronic polyarthritis.  
Vnitr. lek., Brno 1 no.3:203-208 Mar 55.

1. Z reumatologickeho oddeleni KUNZ v Brne--prednosta MUDr.  
Frant. Kuthan, Brno, Gorkeho 26.  
(ARTHRITIS, RHEUMATOID, blood in  
hemagglutination test.)  
(HEMAGGLUTINATION, in various diseases  
arthritis, rheum., test.)



SEARCHED, GIVEN NAME

Country: Czechoslovakia

Academic Degrees:

Tuberculosis Laboratory (Krajska tuberkulosa laborator) of the Kraj Public-Health  
Affiliation: Institute (Krajsky ustav narodniho zdravi) in Brno-Bohunice

Source: Prague, Rozhledy v Tuberkulose a v Nemocech Plicnich, No 4, Apr 61, pp 289-294

Data: "Diagnostic Significance of the Catalase and Peroxydase Reactions"

S/080/60/033/008/014/022/XX  
D213/D304

AUTHORS: Leshek, F., Sytarzh, M., and Khromechek, R.

TITLE: Methods of producing ion-exchangers by globular polycondensation

PERIODICAL: Zhurnal prikladnoy khimii, v. 33, no. 8, 1960,  
1745 - 1755

TEXT: The paper begins with a detailed review of literature on the development of ion-exchange resins and their uses. The purpose of the investigations reported in the paper was to study the effect of operating conditions, particularly of mixing, on the production of copolymer globules by polycondensation and polymerization in suspensions. In the experiments, a 29-liter reactor was mostly used, some experiments being made in larger (65 and 180 liter) ones, in each case fitted with tubes for temperature measurement. Globule diameter of the product was determined using the equation: ✓

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S/080/60/033/008/014/022/XX  
D213/D304

Method of producing ion-

(2)

$$d = d_{cp} = \sum \frac{d_i x_i}{100}$$

where  $d_i$  is the arithmetical mean of the diameters of the holes in this sieve used (in mm.) and  $x_i$  is the gravimetric proportion of the appropriate fraction retained on the sieve (%). The mixer diameter varied from 100 to 400 mm and reactor diameters were 300, 390 and 600 mm. Mixer width varied from 0.225 to 0.375 of its diameter and its slope was constant at 45° to the horizontal. The density of the disperse phase was within the range of 0.86 - 1.61 at 20°C. The liquids used in the experiments were xylol, monochlorbenzene, o-dichlorbenzene, tetrachlorethane and mixtures thereof. The relation between globule diameter and the following operating factors was examined: mixer diameter, mixing speed (rpm), density ratio of dispersed to disperse phase, volume ratio of the two phases, mixer efficiency, Reynolds number, Weber number. The following formulae are derived which summarize the results:

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D213/D304

Method of producing ion- ...

$$d = k_1 \left(\frac{T}{D}\right)^{1.9}, \quad (3)$$

where d - globule diameter, T - reactor diameter, D - mixer diameter,

$$d = k_2 N^{-0.65} \quad (4)$$

for large diameter mixer (N - rev/min.) and cationite FN, ✓

$$d = k_3 N^{-0.80} \quad (5)$$

for mixers of smaller diameter, cationite FN.

$$d = k_4 N^{-2.0} \quad (6)$$

for anionite MFD. [Abstractor's note:  $k_1$ ,  $k_2$  etc. are constants].  
Formulae in similar form are derived to represent the other rela-

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Method of producing ion- ...

S/080/60/033/008/014/022/XX  
D213/D304

tionships with operating data and are shown in a series of curves. There are 13 figures and 26 references: 3 Soviet-bloc and 23 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: E. Trommsdorf, Makromol. Chem. 1954, v. 13, 76; Th. Vermeulen et al., Chem. Eng. Progr., 1955, v. 51, 85 F; W.A. Rodgers et al, ibid., 1956, v. 52, 515; Van de Wusse, Chem. Eng. Sci., 1954, v. 4, 221.

ASSOCIATION: Issledovatel'skiy institut sinteticheskikh smol  
Chekhoslovakiya (Research Institute for Synthetic  
Resins, Czechoslovakia)

SUBMITTED: March 14, 1950 [Abstractor's note: 1950 probably mis-  
print for 1960]

Card 4/4

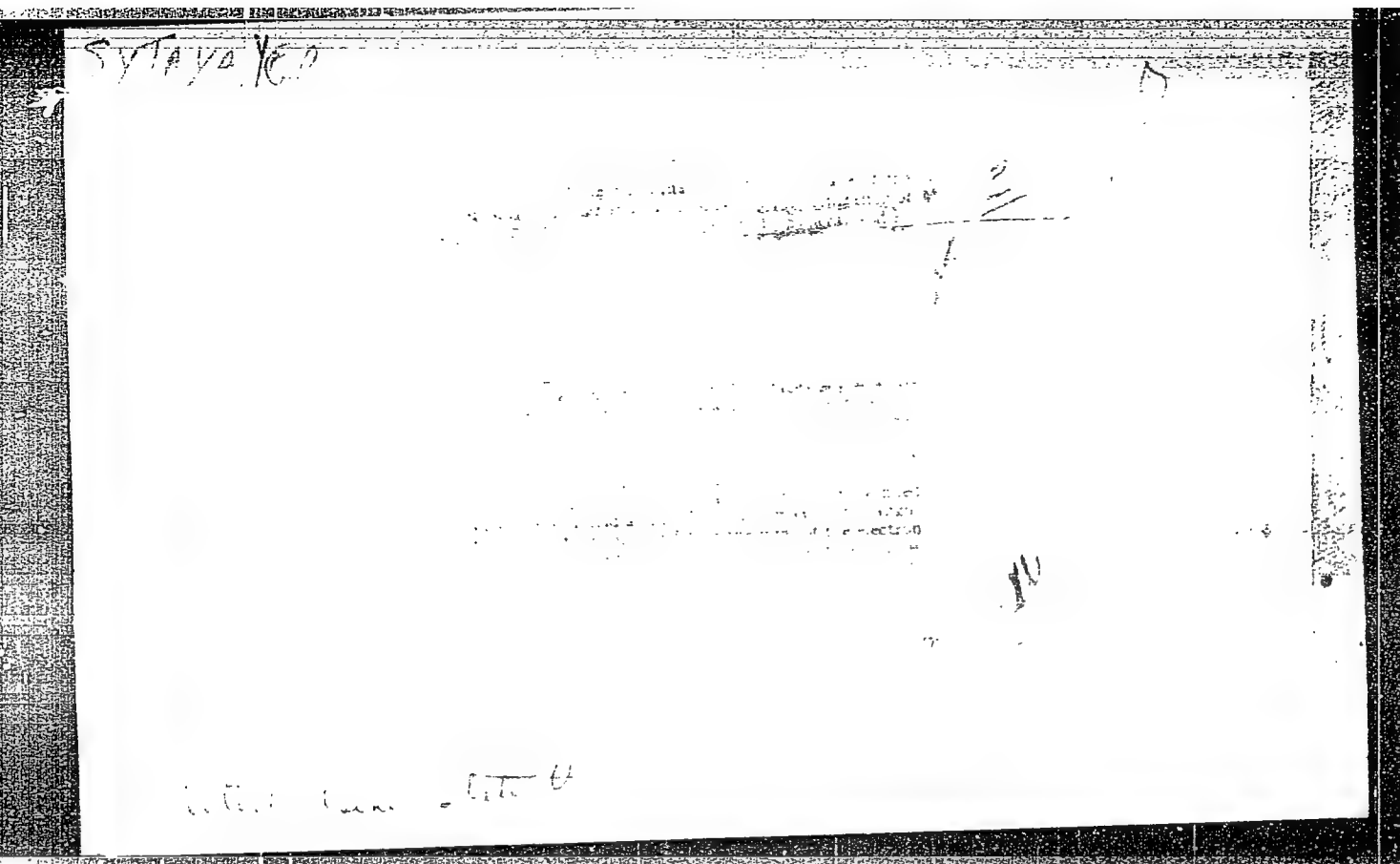
SYTAYA, G.N.

A multiple stochastic integral. Ukr.mat.zhur. 16 no. 3:351-364  
(MIRA 17:7)  
164.

SYTAYA, G.N.

Limiting distribution of a certain class of functionals from  
a sequence of sums of independent random variables. Dokl AN  
SSSR 158 no.1:53-55 S-O<sup>r</sup> 64 (MIRA 17:8)

1. Institut matematiki AN SSSR. Predstavleno akademikom  
A.N. Kolmogorovym.





GORBATYY, N.A. (Tashkent); RASHETNIKOVA, L.V. (Tashkent); SYTAYA, Ye.P. (Tashkent); SHUPPI, G.N. (Tashkent).

Electrostatic emission from single Ta crystals. Zhur. tekhn. fiz. 27  
no.2:296-298 1957. (MLBA 10:4)  
(Tantalum) (Electrostatics)

Abstract: "Field-emission patterns for Ta single crystals appear identical to those obtained for W and Mo."

SHUPEN, G.N.; SYTAYA, Ye.P.; KADYROV, R.M.

Positive surface ionization of sodium and potassium and the electron work function of tungsten single-crystal faces (110). Trudy SAGU no.91:5-15 '57. (MIRA 11:2)

(Thermionic emission) (Tungsten)

GORBATYY, N.A.; RESHETNIKOVA, L.V.; SYTAYA, Ye.P.; SHUPPE, G.N.

Electrostatic emission from tantalum single crystals. Trudy SAGU  
no.91:39-42 '57. (MIRA 11:2)

(Tantalum) (Electron emission)

9.3120 (1003,1043,1140)  
26.2531

87219

S/058/60/000/011/001/007  
A001/A001

Translation from: Referativnyy zhurnal Fizika, 1960 No. 11, p. 307, # 30475

AUTHORS: Smorodina, M.I., Sytaya, Ye.P.

TITLE: An Investigation of Changes in Thermionic Properties of Rhenium-Coated Tungsten Cathodes

PERIODICAL: Tr. Sredneaz. un-ta, 1959, No. 148, pp. 9-22

TEXT: Thermionic and structural characteristics of W-Re cathodes were investigated by means of a cylindrical projector, a metallographic microscope and X-ray diffraction study. The distribution of emission current ( $j$ ) over the perimeter of a filament cathode was measured after various stages of thermal treatment. It is shown that Re-coating of the cathode grows more uniform after calcination, and after protracted calcination at a temperature of 2,600-2,700°K the filament becomes face-bounded (a plateau shows up on curves  $j = f(\alpha)$ , where  $\alpha$  is the filament deflection angle). The control curve of relation  $j = f(\alpha)$  for pure W is characterized by the presence of symmetric maxima corresponding to the cubic system in which W crystallizes. A conformity of Re-coating with the outline of the W-skeleton was discovered. The values of  $\phi = 4.77$  ev and  $A = 350$  amp/cm<sup>2</sup> de-

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S/058/EO/000/011/001/007  
A001/A001

An Investigation of Changes in Thermionic Properties of Rhenium-Coated Tungsten Cathodes

gree<sup>2</sup> were determined by the Richardson straight-line method. The magnitude of emissive power was determined by the method of specific capacities. The degree of roughness was estimated from the values of Schottky form-factor. After a protracted calcination at 2,100°K the value of the form-factor almost did not depend on the further thermal treatment. It was found out that in a vacuum of  $10^{-4}$ - $10^{-5}$  mm Hg, W is liberated from Re when high voltage is applied. An intermediate layer between W and Re was discovered by a metallographic microscope, which is apparently an alloy of these metals. The existence of the intermediate layer was confirmed by the X-ray diffraction study. The authors provide indications as to the manufacture of W-Re cathodes. There are 10 references.

ASSOCIATION: Sredneaz. un-t (Central Asian University), Tashkent

V.N.Lutskiy

Translator's note: This is the full translation of the original Russian abstract.

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S/139/61/000/006/008/023  
E032/E514

AUTHORS: Sytaya, Ye.P. and Shuppe, N.G.

TITLE: Ionization of iodine atoms at a hot tantalum surface

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, no.6,  
1961, 52-56 + 1 plate

TEXT: The authors report an investigation of surface ionization of iodine on tantalum. A special study was made of the effect of the "ageing" of the surface. The ion emission was observed with the aid of the magnetron method. The experimental tube was in the form of a triode whose cylindrical anode was divided into three parts (tantalum). The filament (150-250  $\mu$ ) and the grid were coaxial with the anode. Only the middle part of the anode was used, the two outer parts served as guard rings. The device was first baked and evacuated to a pressure of  $10^{-6}$  mm Hg. Electrons were removed by a magnetic field parallel to the filament. The electron and ion currents were measured by a mirror galvanometer with a sensitivity of  $2 \cdot 10^{-9}$  A/div. The ion currents were measured for a tantalum filament at iodine vapour pressures between  $2 \cdot 7 \cdot 10^{-2}$  and  $5 \cdot 10^{-5}$  mm Hg in the temperature range 1600 to

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Ionization of iodine atoms ...

S/139/61/000/006/008/023  
E032/E514

2500°K. Comparison of the experimental results with the Saha equation showed that the surface ionization of the iodine atoms does not occur over the entire polycrystalline surface: it occurs only at certain spots on the surface which have low work functions. Measurements were also made of the work function and Richardson's constant of tantalum. The results for 150  $\mu$  diameter wire (0.001% Fe, 0.01% Nb, traces of Cu) are shown in Table 2.

Table 2

| $\phi$ eV       | A A/deg <sup>2</sup> cm <sup>2</sup> | Heat treatment   |
|-----------------|--------------------------------------|--|
| 4.42 $\pm$ 0.02 | 82                                   | Temperature raised from 800 to 2500°K in 5 hours, followed by heating at 2000°K and 10 <sup>-8</sup> mm Hg for 20 hours. |
| 4.14 $\pm$ 0.02 | 106                                  | Further heating for 30 hours at 2300°K.  |

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Ionization of iodine atoms ...

S/139/61/000/000/008/023  
E032/E514

It was established that there is a temperature threshold for the adsorption of iodine on tantalum at 1800-1900°K. Acknowledgments are expressed to G. N. Shuppe for suggestions. There are 4 figures, 2 tables and 3 references: 1 Soviet-bloc and 2 non-Soviet-bloc. The English-language references read as follows: Ref.1: P.P. Sutton and J.E.Mayer, Journ.Chem.Phys. 3, 20, 1935; Ref.2: L. Malter and D. B. Langmuir, Phys.Rev. 55 743, 1935.

ASSOCIATION: Sredneaziatskiy gosuniversitet imeni V. I. Lenin  
(Committee: Asian State University imeni V. I. Lenin)

SUBMITTED: September 29, 1960

Card 5/5



9.3120  
26.2312  
26.2531

36883  
S/181/62/004/004/027/042  
B102/B104

AUTHORS: Sytaya, Ye. P., Smorodina, M. I., and Imangulova, N. I.

TITLE: Electron and ion emission from the faces (110) and (100) of a big tungsten monocrystal

PERIODICAL: Fizika tverdogo tela, v. 4, no. 4, 1962, 1016-1020

TEXT: The authors measured the electron work function for the faces (110) and (100) of W single crystals by means of electron emission and surface ionization of Na and Ba atoms. The pressure in the tube in which the measurements were made was less than  $10^{-8}$  mm Hg, the samples were heated before measuring up to  $\sim 2800^\circ\text{K}$ . The work function was determined from the straight lines  $\log(I/T^2) + C = f(1/T)$  (Richardson law) with  $A_0 = 120 \text{ a/cm}^2 \cdot \text{deg}^2$  and  $D=1$ . The work functions obtained were:

$\phi_{(110)}^* = 5.30 \pm 0.06 \text{ eV}$  and  $\phi_{(100)}^* = 4.66 \pm 0.06 \text{ eV}$ . From the salient points of the temperature dependence of the electron emission the threshold temperatures of oxygen adsorption were determined. They were  $\sim 2100^\circ\text{K}$  for the (100) face and  $\sim 2000^\circ\text{K}$  for the (110) face. The lower Card 1/3

S/181/62/004/004/027/042  
B102/B104

Electron and ion emission from...

limit of the work function for the (110) face is  $5.04 \pm 0.06$  ev; such a low value is, however, due to surface imperfections. The effect of surface homogeneity was checked with W samples covered with adsorbed Ba or Na ions. The threshold temperature for adsorption of Ba on the (110) face was 1750-1780°K, the "ionic" work function was  $\phi_{(110)}^{\text{ion}} = 4.82 \pm 0.06$  ev.

The effective electronic work function of the (110) tungsten surface covered with adsorbed barium was  $\phi_{(110)}^{\text{eff}} = 1.66 \pm 0.06$  ev, with adsorbed sodium it was  $5.30 \pm 0.06$  ev, with another sample (porous surface)  $5.05 \pm 0.06$  ev. The "ionic" work function equals the Na ionization potential. The electron emission from (110) was studied before and after heat treatment at 2800°K. In the range 1600-2500°K,  $\phi_{(110)}^{\text{eff}} \sim 6.00$  ev before heat treatment, and  $5.30 \pm 0.06$  ev after, provided the sample surface is homogeneous. It is therefore necessary to subject the samples to careful microscopic investigation. When the samples are selected according to their etch patterns, they should be etched only on the non-emitting side. G. N. Shuppe is thanked for discussions. There are 6 figures.

Card 2/3

Electron and ion emission from...

S/181/62/004/004/027/042  
B102/B104

ASSOCIATION: Tashkentskiy gosudarstvennyy universitet im. V. I. Lenina  
(Tashkent State University imeni V. I. Lenin)

SUBMITTED: July 20, 1961 (initially)  
December 19, 1961 (after revision)

Card 3/3

SYTAYA, Ye.P.; SHUPPE, N.G.

Measurement of the electronic emission with time from tungsten  
wires calcinated by direct and alternating current. Izv. AN SSSR  
Ser.fiz. 26 no.11:1349-1353 N '62. (MIRA 15:12)  
(Thermionic emission)

SYTAYA, Ye.P.; SHUPPE, N.G.

Surface ionization of iodine and sodium on an incandescent  
polycrystalline tantalum filament. Nauch. trudy TashGu no.221.  
Fiz. nauki no.21:103-112 '63. (MIRA 17:4)

SMORODINOVA, M.I.; SYTAYA, Ye.P.

Some thermoelectronic properties of Ba films on faces (110) and  
(100) of tungsten single crystals. Nauch. trudy TashGu no.221.  
Fiz. nauki no.21:123-127 '63. (MIRA 17:4)

L 26668-65 EWT(m)/EWA(d)/EWP(t)/T/EWP(b) IJP(c) MJW/JD/JG

ACCESSION NR: AP5003314

S/0166/64/000/006/0074/0078

AUTHORS: Imanulova, N. G.; Sytaya, Ye. P.; Shuppe, G. N.

TITLE: Adsorption of barium on tungsten wires made incandescent  
by alternating or direct current

SOURCE: AN UzSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk,  
no. 6, 1964, 74-78

TOPIC TAGS: barium, tungsten, metal sputtering, surface adsorption,  
work function

ABSTRACT: The investigations were made in instruments comprising  
diodes with cylindrical slotted anodes, as shown in Fig. 1 of the  
enclosure. A polished tungsten wire (grade VA-3) 11--12 cm long  
was stretched along the axis of the diode. The barium sources were  
molybdenum vessels filled with barium-beryllate powder. The initial  
vacuum was  $2--5 \times 10^{-8}$  mm Hg and was reduced to  $2--3 \times 10^{-9}$  mm Hg

Card

1/43

2

L 26668-65

ACCESSION NR: AP5003314

with a titanium getter. Tests were made with dc from storage batteries or with stabilized ac, at  $T = 2400K$ . The authors have shown earlier (Izv. AN SSSR seriya fiz. 1962, no. 11, 1349) that the emission from such a filament depends on the work functions of the individual spots produced on it by heat treatment and activation, and these in turn differ for ac and for dc. The results of the present investigation have shown that the spottiness and roughness of samples heated with alternating current is much lower than that of samples heated with direct current. The effect of the maximum temperature and of the barium sputtering time are discussed. The values obtained for the work functions and the heats of adsorption of barium are 4.90 and 3.2 eV in the case of dc and 4.45 and 4.25 eV in the case of ac. This agrees with earlier data by one of the authors (Shuppe, Elektronnaya emissiya metallicheskih kristallov [Electron Emission of Metallic Crystals], Izd. SAGU, Tashkent, 1959). Orig. art. has: 8 figures and 2 formulas.

Card

2/4



L 26668-65  
ACCESSION NR: AP5003314

ASSOCIATION: Tashkentskiy gosuniversitet im. V. I. Lenina (Tashkent  
State University)

SUBMITTED: 07Jul64

ENCL: 01

SUB CODE: MM, GC

NR REF SOV: 005

OTHER: 001

Card

3/4

L 25479-66 EPF(n)-2/EWT(1)/EWT(m)/I/EWP(t) IJP(c) WW/JD/JG

ACC NR: AF6009688

SOURCE CODE: UR/0181/66/008/003/0936/0938

AUTHOR: Dikova, L. K.; Sytaya, Ye. P.; Shuppe, G. N.

ORG: Tashkent State University im. V. I. Lening (Tashkentskiy gosudarstvennyy universitet)

TITLE: Thermoelectronic properties of the (110) and (111) faces of single-crystal tungsten coated with a thorium film

SOURCE: Fizika tverdogo tela, v. 8, no. 3, 1966, 936-938

TOPIC TAGS: thermoelectric property, electron emission, tungsten, single crystal, work function, metal film, thorium, pressure effect

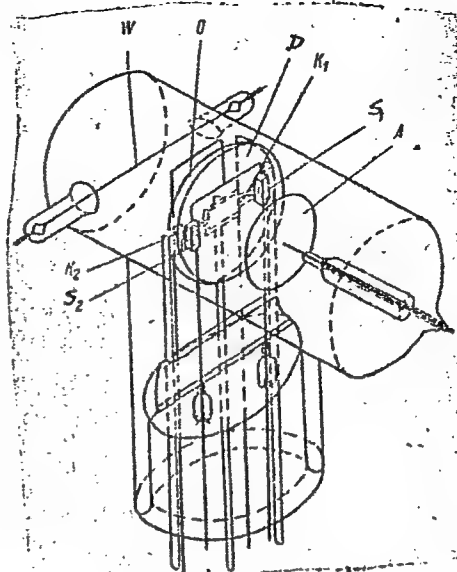
ABSTRACT: To check on the theoretical conclusions of E. P. Gyftopoulos and I. D. Levine (J. Appl. Phys. v. 33, 67, 1962) that work-function minima can appear on thorium films only if deposited on the (110) face of tungsten, the authors investigated in the temperature range 1300--1600K the variation of the emission current with time following sputtering of thorium on the (110) and (111) faces of monocrystalline strips of tungsten. The crystals were prepared by a procedure described earlier (Nauch. tr. Tashkent. gos. univ., vyp. 221, 123, 1963) and tested in a specially designed instrument (Fig. 1). The test results have shown that no minima of work functions occurred for the (110) face at pressures  $10^{-7}$ -- $10^{-9}$  mm Hg, or for the (111) face at  $10^{-8}$ -- $10^{-9}$  mm Hg. The only work-function minima occurred for the (111) face when the residual-gas pressure was approximately  $10^{-7}$  mm Hg, and also during the initial stages of the test, in agreement with the earlier results. The work function

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1. 25479-55

ACC NR: AP6009688

Fig. 1. Schematic diagram of instrument.  
K -- single crystals, D -- diaphragm,  
O -- guard disc, S -- source, A -- anode.



of the crystal coated with thorium was found to be equal to the work function of pure thorium (3.4 ev) for both faces. Causes of erroneous results obtained by others are briefly discussed. Orig. art. has: 5 figures.

SUB CODE: 20

SUBM DATE: 17Jul65/

ORIG REF: 003

OTH REF: 003

Card 2/2

SYTDYKOV, A. K.

Cand Vet Sci - (diss) "Pneumonia of karakul'skiye sheep in Uzbekistan." Samarkand, 1961. 17 pp; (Samarkand Agricultural Inst imeni V. V. Kuybyshev of the Ministry of Agriculture Uzbek SSR); 250 copies; price not given; (KL, 7-61 sup, 254)

SYTDYKOV, A.K.

Pneumonia causes in Karakul lambs. Trudy Uz.nauch.-issl.inst.  
vet. 14:33-45 '61. (MIRA 16:2)  
(Karakul sheep—Diseases and pes  
(Pneumonia)

SYTDYKOV, A.K.

Diagnosis of pneumonia in Karakul lambs. Trudy Uz.nauch.-issl.  
inst.vet. 14347-53 '61. (MIRA 16:2)

(Uzbekistan--Pneumonia)  
(Uzbekistan--Karakul sheep--Diseases and pests)

SYTEK, J.

Polish Technical Abst.  
No. 1 1954  
Other Branches of National  
Economy, Miscellaneous

674.048 : 674.028.9 : 674.038.4.001.2  
Zentkeler M., Sytek J., Urbanicki J. Research over Bonding Woods  
Impregnated by Various Means.

„Badania nad sklejalnością drewna w różny sposób załmpregnowa-  
nego”. Przemysł Drzewny. No. 2, 1953, pp. 52-54, 3 tabs.

Method and result of research over the influence of impregna-  
ting media on the ultimate bondability of impregnated wood. The im-  
pregnating media used in the tests were aqueous solutions of organic  
and inorganic compounds, bonding being carried out with cold-blading  
casein glue. Certain of the impregnating media had no influence on  
the strength of bonds, while others slightly reduced the strength. So-  
dium fluoride proved to be the most satisfactory impregnating medium.  
No tests were carried out to determine the influence of oily impregnat-  
ing media which are unsuitable for use in house and railway wagon  
building. The Polish „Impercol” compregnating method, developed in  
1950, makes it possible to hot-bond large-size wooden elements and  
simultaneously impregnate them with creosote oil.

SYTEN'KIY, N.A., shofer

Man is glorified by work! Transp. stroi. 15 no.1:34-35 Ja '65.  
(MIRA 18:3)

1. Mekhanizirovannaya kolonna No.12 Upravleniya Abakanstroyput'.



SYTEN'KIY, N.A.

Such a man exists. Transp. strol. 15 no.6:34 Je '65.  
(MIRA 18:12)

SYTENKO, L.S.

Fruit moth species and their parasites in the Maritime Territory.  
Ent. oboz. 39 no.3:551-555 '60. (MIRA 13:9)

1. Vsesoyuznyy institut zashchity rasteniy Vsesoyuznoy akademii  
sel'skokhozyaystvennykh nauk im. Lenina, Leningrad.  
(Maritime Territory--Moths) (Fruit--Diseases and pests)

SYTENKO, L.S. (g. Ussuriysk, Primorskogo kraya); LESKOVA, A.Ya., kand.  
selskokhozyaystvennykh nauk; PROKHOROVA, K.P.

Experience in using entobacterin. Zashch. rast. ot vred. i bol..  
7 no.1:37-38 '62. (MIRA 15:6)

1. Vsesoyuznyy institut zashchity rasteniy (for Leskova).
2. Sveduyushchaya laboratoriyey Voronezhskoy biostantsii  
(for Prokhorova).

(Insecticides)

ACCESSION NR: AT4038175

S/2690/63/005/006/0237/0255

AUTHOR: Rastrigin, L. A.; Sy\*tenko, L. V.

TITLE: High-speed extremal regulator based on a random-search method

SOURCE: AN SSSR. Institut elektroniki i vy\*chislitel'noy tekhniki. Trudy\*, v. 5, 1963. Avtomatika i vy\*chislitel'naya tekhnika (Automation and computer engineering), no. 6, 237-255

TOPIC TAGS: computer control, computer data processing, decision making, optimal operation, self adaptive system

ABSTRACT: An extremal self-adaptive digital regulator for the optimization of objects with many parameters is described. The main part of the regulator is a generator of random pulse sequences, and the optimal mode is determined by random search; this is shown to afford a faster degree of convergence in the adjustment of many-parameter objects than other methods (e.g., the gradient method) and to result in an operating speed two orders of magnitude higher than hitherto developed systems. The extremal regulator is of the "learning" type, in that parameter changes which lead to improved quality have a greater probability of oc-

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ST-12

ACCESSION NR: AT4038175

currence. The main units of the regulator (random-sequence pulse generator, sequence to amplitude converter [modifier], model of the object, logic block, memory block, limiters) are described in detail (see Fig. 1 of Enclosure), and the results of an experimental check on the operation of the regulator are reported. The adjustment speed increases with increasing size of the discrete steps used in the variation of the parameter and memory. The adjustment accuracy increases with the memory step and decreases with an increasing parameter step. Compensation for null drift and for industrial pickup noise is provided. Orig. art. has: 17 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 01

SUB CODE: DP

NO REF SOV: 009

OTHER: 000

Card 2/3

ACCESSION NR: AT4038175

ENCLOSURE: 01

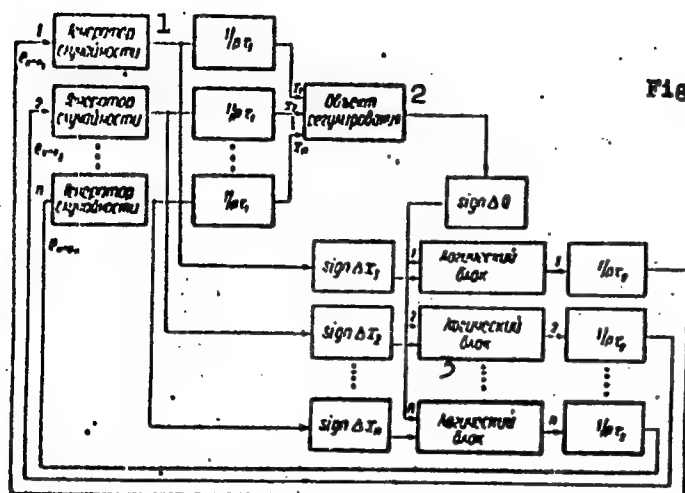


Fig. 1. Block diagram of multi-parameter self-adaptive extremal system operating on the random-search principle

- 1 - random generator
- 2 - regulated object
- 3 - logic block

Card 3/3

ACC NR: AT6018285

SOURCE CODE: UR/3192/65/000/010/0169/0129

AUTHOR: Rastrigin, L. A.; Sytenko, L. V.

ORG: none

TITLE: Relay-type multichannel optimizer operating on random-search algorithms

SOURCE: AN LatSSR. Institut elektroniki i vychislitel'noy tekhniki. Avtomatika i vychislitel'naya tekhnika, no. 10, 1965, 169-188

TOPIC TAGS: optimization, automatic control R and D

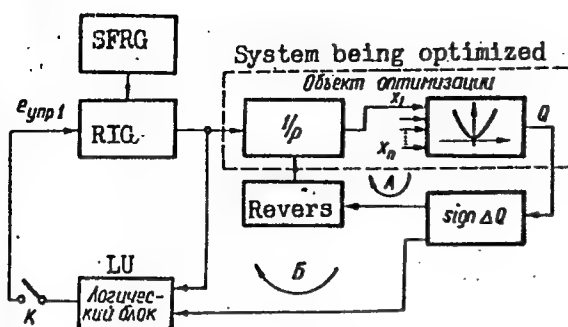
ABSTRACT: The multichannel optimizer described in this article is intended for developing simulators of industrial processes (by a learning-model method) and for determining optimal parameters of these simulators; the optimizer has a low search frequency (up to a few dozen cps). Designed for operation with inertial systems, the optimizer comprises (see figure) a random-impulse generator (RIG) which produces heteropolar impulses at a frequency set by a search-frequency reference generator (SFRG). The impulses are applied to an integrating unit (1/p) which is represented either by the corresponding unit of the simulator or by a reversible motor. A sign

Card 1/2

UDC: 62-505:519.27

L 06986-67

ACC NR: AT6018285



One-channel optimizer

$\Delta Q$  unit controls the motor reversal which restores the last base point in case of an unsuccessful move. Each channel has a self-learning characteristic: the probability characteristic of the random-impulse generator, which determines the direction of moves, is controlled by a logic unit (LU). A recurrent formula describes the algorithm for returning the random generator. Principal circuits of all above units are described. An experimental verification included a study of the

optimization process in a 2-parameter inertialess plant with a nonlinear objective function by means of an electronic nonlinear simulator (Soviet-made MN-7). The optimizer is recommended for systems with any number of variables and a time constant of 2—100 sec. Orig. art. has: 13 figures and 8 formulas.

SUB CODE: 12, 09 / SUBM DATE: none / ORIG REF: 018

Card 2/2 LC



L 00009-07 EnT(1)  
ACC NR: AT6018286

SOURCE CODE: UR/3192/65/000/010/0189/0209

AUTHOR: Sytenko, L. V.

ORG: none

TITLE: Controllable random-impulse generators 25

SOURCE: AN LatSSR. Institut elektroniki i vychislitel'noy tekhniki. Avtomatika i vychislitel'naya tekhnika, no. 10, 1965, 189-209

TOPIC TAGS: random process, random impulse generator, automatic control R and D

ABSTRACT: Known types of controllable and noncontrollable random-impulse generators are briefly reviewed on the basis of 1956-66 published sources. Theoretical and experimental development of these two types is described in some detail: (1) Generator based on coincidence of pulses of two quasi-periodic sequences; the sequences have substantially different frequencies, and the interval between two adjacent coincidences is longer than the correlation time; a modification of this type tested experimentally had a higher (sawtoothed-voltage) frequency of 15 cps and a repetition rate of lower frequency within 0.5—0.002 cps; the necessity for a wide

Card 1/2

UDC: 621.373.442 - 519.27

L 00707-01

ACC NR: AT6018286

5

interval between the frequencies of the initial quasi-periodic sequences is held as a drawback of the above types; (2) Generator based on coincidence of pulses belonging to one sequence but having random time shift; the probability of coincidence depends on introduced timelag and its dispersion; this probability can be controlled by adjusting the mean value of the timelag; thus, a random-impulse generator with a (voltage-) controllable probability of impulse generation becomes possible. In experiments with the latter type, the sequence was obtained from a commercial pulse generator, and the random lag was created by a noise voltage taken from a thyatron anode. The shape of the probabilistic characteristic remained practically constant when the regular-pulse frequency was varied within 1-100 kc. "The author wishes to thank L. A. Rastrigin for his guidance, V. A. Mutseniyek for mathematical consultations, and Ye. Sh. Kogan, Ye. T. Ivanov, and S. I. Mashonkin for their help in setting up the test hookups." Orig. art. has: 14 figures, 16 formulas, and 1 table.

SUB CODE: 09 / SUBM DATE: none / ORIG REF: 007 / OTH REF: 002

Card 2/2 LC

L 08902-67

ACC NR: AT0022095

SOURCE CODE: UR/0000/66/000/000/0280/0290

3/

AUTHOR: Rastrigin, L. A.; Ripa, K. K.; Sytenko, L. V.

ORG: none

TITLE: Automatic optimizers operating on the principle of statistical search with self-teaching

SOURCE: Moscow. Institut avtomatiki i telemekhaniki. Samoobuchayushchiyesya avtomaticheskiye sistemy (Self-instructing automatic systems). Moscow, Izd-vo Nauka, 1966, 280-290

TOPIC TAGS: optimal automatic control, self adaptive control, learning mechanism

ABSTRACT: Self-teaching in the extremal control of multiparameter systems by the statistical search method involves changing the probability characteristics of random generators such that the probability of favorable steps increases and the probability of unfavorable steps decreases. The optimizer with statistical search operates in such a manner that these probability increases occur simultaneously at each parameter. A block diagram of such a system is shown. The basic element of the optimizing channel is the random generator which generates random pulse sequences. A pulse at the generator output produces a positive change in the parameter to be optimized and the absence of a pulse, a negative change. A new method of self-teaching by which it is possible

Card 1/2

S/185/62/007/011/001/019  
D234/D308

AUTHORS: Sytenko, O. <sup>G</sup> and Kharchenko, V.F.

TITLE: Polarization phenomena in direct nuclear reactions, taking the spin-orbital interaction into account

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 7, no. 11, 1962, 1149-1158

TEXT: The authors deduce several expressions for the angular distribution and polarization of the products of stripping (d,p) and capture (p,d) reactions. In the first case, if the deuterons are not polarized, ✓

$$\left(\frac{d\sigma}{d\Omega}\right)_i - \left(\frac{d\sigma}{d\Omega}\right)_o \left\{ 1 + 3 \frac{i}{i+1} \frac{j(j+1) - i(i+1) - \frac{3}{4}}{j(j+1) - i(i+1) + \frac{3}{4}} P_i P_j \right\}, \quad j \neq 0, \quad (17)$$

where  $P_i$  is the polarization vector of the initial nucleus and  $P_j$  that of the final nucleus. It is desirable to check this equation  
Card 1/2

Polarization phenomena ....

S/185/62/007/011/001/019  
D234/D308

experimentally. In the second case, if the protons are not polarized, i and j in (17) are interchanged. The most important English language references reads as follows: D. Robson, Nucl. Phys., v. 22, 34, 1961; v. 22, 47, 1961.

ASSOCIATION: Kharkivs'kiy derzhuniversytet (Kharkov State University) ✓

SUBMITTED: April 12, 1962

Card 2/2

I 17185-63

EWI(1)/BDS/EEC(b)-2

AFFTC/ASD/ESD-3/LJP(C)

GG/K

ACCESSION NR: AP3000232

S/0185/63/008/005/0537/0548

AUTHOR: Sy\*tenko, O. <sup>G.</sup> ~~M.~~; Sy\*menog, I. V.

TITLE: Theory of fluctuations in superconductors

SOURCE: Ukrayins'kyi fizychnyy zhurnal, v. 8, no. 5, 1963, 537-548

TOPIC TAGS: fluctuation, superconductor, superconductive film, light scattering, Bogolyubov microscopic theory, superconductivity electron, density fluctuation, Raman scattering, dielectric constant

ABSTRACT: The density and current fluctuations are considered in a system of electrons in a superconducting state; spectral distributions of space - time correlation functions being found for such fluctuations. The density fluctuations connected with collective excitation in the superconductor are investigated. The fluctuational-dissipative theorem is used to determine the longitudinal and transverse dielectric constants for a superconductor by the derived spectral distributions of correlation functions. The Raman scattering of light by collective density fluctuations in the superconductor is discussed. Orig. art. has 36 numbered

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L 17185-63

ACCESSION NR: AP3000232

2

equations.

ASSOCIATION: Kharkivs'ky'y derzhavny'y universy\*tet, Ubsty\*tut fizy\*ky\* AN UkrSSR  
(Khar'kov State University; Institute of Physics AN UkrSSR)

SUBMITTED: 05 Oct 62

DATE ACQ: 18 Jun 63

ENCL: 00

SUB CODE: PH

NO REF SOV: 005

OTHER: 002

Card 2/2

L 28014-65 EWT(m)/T

ACC NR: AP6018163

SOURCE CODE: UR/0185/65/010/005/0469/0480

AUTHOR: Sytenko, O. G.; Kharchenko, V. F.

ORG: Institute of Physics, AN UkrSSR (Instytut fizyky AN UkrSSR)

TITLE: Problem of the motion of three nucleons allowing for tensor forces

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 5, 1965, 469-480

TOPIC TAGS: nucleon, neutron scattering, deuteron, integral equation, nuclear binding energy, wave function

ABSTRACT: The authors consider the problem of the motion of three nucleons, the interaction between which is described by Yamaguchi's potential with tensor forces taken into account. The problem of the bound state of the three nucleons and the problem of the scattering of a zero-energy neutron by a deuteron are reduced to the solution of systems of one-dimensional integral equations. As a result of the numerical solution of the integral equations it is possible to determine the doublet length of the scattering of a neutron by a deuteron, the binding energy, and the wave function of the three nucleons in the bound state. Orig. art. has: 22 formulas, 2 figures. [JPRS]

SUB CODE: 20 / SUBM DATE: 18Jun64 / ORIG REF: 004 / OTH REF: 006

Card

1/1



L 62675-65 EWT(1)/EWT(m)/EWP(t)/EWP(b) LJP(c) JD

ACCESSION NR: AP5018636

UR/0185/65/010/007/0753/0762

AUTHOR: Dmytruk, M. L. (Dmitruk, N. L.); Lyashenko, V. I.; Sytenko, T. M. (Sytenko, T. N.)

TITLE: Effect of external electric field on the conductivity of gallium arsenide

SOURCE: Ukrayins'kyi fizychnyy zhurnal, v. 10, no. 7, 1965, 753-762

TOPIC TAGS: gallium arsenide, conductivity, field effect, Hall constant, carrier density carrier mobility, surface state

ABSTRACT: The article describes briefly the status of research on the electric properties of GaAs surfaces and the results of measurements made by the field-effect method in a vacuum of  $10^{-5}$  mm Hg at room temperature. Tests were made on high-resistance p-type GaAs, with resistivity 121 and 78,000 ohm-cm (2 samples) and low-resistance n-type with resistivity  $3.3 \times 10^{-2}$ — $2 \times 10^{-3}$  ohm-cm (6 samples). The amplitude characteristics of the field effect of the p-type GaAs exhibited the usual behavior, with a weakly pronounced minimum. The n-type samples disclosed larger variations of the conductivity induced by the external field, the magnitude of the effect being dependent on the type of surface finish (mechanical finish decreased the effect, etching in alkali left it unchanged). The nature of these changes is unclear. The slow relaxation of the field effect had a nonexponential

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ACCESSION NR: AP5018636

character with a time constant on the order of several minutes. This made it possible to estimate the lower limit of the concentration of the slow electron states ( $10^{10}$ — $10^{11}$  cm<sup>-2</sup>). The dependence of the Hall constant is connected essentially with the change in the carrier density in the surface layer. It is concluded that the p-type GaAs has a depletion layer on its surface. "The authors thank M. A. Gudymenko (Gudimenko) for participating in the measurements and S. I. Kyrylova (Kirilova) for preparing the samples, and also Candidate of Physical and Mathematical Sciences O. V. Snitko for participating in a discussion of the results." [02]  
Orig. art. has: 5 figures and 1 table.

ASSOCIATION: Instytut napivprovidnykiv AN URSR  
(Institute of Semiconductors, AN UkrSSR)

SUBMITTED: 02Feb65

ENCL: 00

SUB CODE: SS, EM

REF SOV: 007

OTHER: 020

ATD PRESS: 4057

Card 2/2

SYTENKO, V.B.

Transfemoral aortography in renal tuberculosis. Probl. tub.  
42 no.1:54-57 '64. (MIRA 17:8)

1. Klinika urogenital'nogo tuberkuleza (zav. - prof. B.L. Polonskiy) Ukrainskogo nauchno-issledovatel'skogo instituta tuberkuleza i grudnoy khirurgii imeni akademika F.G. Yanovskogo (dir. - dotsent A.S. Mamolat).

SYTENKO, V.B.; POLONSKIY, B.L.

Arterionephrography in renal tuberculosis. Urologiia no.6:8-12  
'64. (MIRA 18:11)

1. Klinika urogenital'nogo tuberkuleza (zav. - prof. B.L.  
Polonskiy) Ukrainskogo instituta tuberkuleza i grudnoy  
khirurgii imeni Yanovskogo, Kiyev.

SYTENKO, V.B.

Diagnosis and treatment of tubercular nephrocirrhosis with  
the hypertensive syndrome. Urologiia no.4:51-52 '64. (MIRA 19:1)

1. Klinika urogenital'nogo tuberkuleza (zav. - prof. B.L.  
Polonskiy) Ukrainskogo instituta tuberkuleza i grudnoy khirurgii  
imeni akademika F.G. Yanovskogo, Kiyev.

GORBACHEV, S.V.; SYTILIN, M.S.

Study of the kinetics of acetone iodination by means of a  
redoxystat. Part 1. Izv.vys.ucheb.zav.; khim.i khim.tekh. 2  
no.5:818-821 '59. (MIRA 13:8)

1. Moskovskiy khimiko-tekhnologicheskoy institut imeni D.I.  
Mendeleeva, kafedra khimicheskoy khimii.  
(acetone) (Iodination)

GORBACHEV, S.V. ; SYTLIN, M.S.

Redoxstat for chemical synthesis at a given oxidation-reduction potential and for the study of the kinetics of the corresponding reactions. Trudy ~~MIHTI~~ no.26:199-205 '59. (MIRA 13:9)  
(Electromotive force) (Oxidation-reduction reaction)  
(Chemical apparatus)

SYTILIN, M. S., Cand Chem Sci (diss) -- "A study of the kinetics of iodization of acetone, and the oxidation of acetic aldehyde with a solution of  $K_2CrO_4$ , and of hydroquinone with a solution of  $Fe_2(SO_4)_3$  using redoxistate". Moscow, 1960. 12 pp (Min Higher and Inter Spec Educ RSFSR, Moscow Order of Lenin Chem-Tech Inst im D. I. Mendeleyev), 180 copies (KL, No 10, 1960, 126)



3/032/60/026/012/029/036  
B10/B056

AUTHOR: Sytilin, M. S.

TITLE: Scheme of a Potentiostat Which Warrants a Constant Polarization Potential of the Working Electrode

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 12, pp. 1424-1425

TEXT: For the purpose of studying the electrochemical processes, it is frequently necessary to maintain the polarization potential of the working electrode constant. For this purpose, the author worked out a simple scheme (Ref. 5), in which a mirror galvanometer was used as indicator and two photoresistors and the polarization relay ПТ-4 (RP-4) were used as working mechanisms. In the present paper, the improved scheme of a potentiostat is described, which makes it possible to equalize potential fluctuations within the range of sensitivity as a function of time, and to reduce the frequency of regulating the polarization potential of the working electrode as soon as the given polarization potential is attained. The scheme described which has a mirror galvanometer and a sensitivity of

Card 1/2

Scheme of a Potentiostat Which Warrants a  
Constant Polarization Potential of the Working  
Electrode

S/032/60/026/012/029/036  
B020/B056

$1 \cdot 10^{-6}$  a, permits regulation of the polarization potential with an accuracy of  $\pm 0.9$  mv. The accuracy of regulating the given polarization potential according to this scheme depends on the sensitivity of the mirror galvanometer selected, on the distance between it and the photoresistors, and on the distance between the two photoresistors. Valuable advice in developing the scheme was given by Professor S.V. Gorbachev and Candidate of Chemical Sciences V. A. Mil'chev. There are 1 figure and 5 references: 4 Soviet and 1 Swiss. ✓

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut im. D. I. Mendeleyeva (Moscow Institute of Chemical Technology imeni D. I. Mendeleyev)

Card 2/?

SYTILIN, M.S. (Moskva)

Diagram of a potentiostat providing a constant polarization  
potential of the indicator electrode. Zhur. fiz. khim. 34  
no.2:464-465 F '60. (MIRA 14:7)

1. Khimiko-tekhnologicheskii institut im. D.I.Mendeleyeva.  
(Electromotive force)

SYTILIN, M.S. (Moscow)

Instrument for graphical differentiation with the aid of  
a circle for speeding up the processing of kinetic curves.  
Zhur.fiz.khim. 34 no.6:1377-1379 Je '60.  
(MIRA 13:7)

1. Khimiko-tekhnologicheskii institut im. D.I.Mendeleeva.  
(Graphic methods) (Chemical reaction, Rate of)

27710

S/120/61/000/003/022/041  
E194/E155

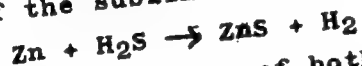
9,4150 (1140)

AUTHOR: Sytilin, M.S.

TITLE: The production of sublimated films of chemical compounds

PERIODICAL: Priory i tekhnika eksperimenta, 1961, No.3, pp.131-132

TEXT: A promising chemical method of depositing luminescent films is based on the circumstance that the vapour pressure of the initial components of the chemical reaction used is greater than that of the sublimed phosphor, e.g. in the case of



the vapour pressures of both  $\text{H}_2\text{S}$  and  $\text{Zn}$  are greater than that of  $\text{ZnS}$ . However, the chemical method of forming films presents the practical problem of periodically introducing solid ( $\text{Zn}$ ) into a continuous flow of gas ( $\text{H}_2\text{S}$ ). The present article describes a fairly simple way of producing such films. The equipment is illustrated diagrammatically. Small granules of metallic zinc are placed in the quartz atomiser (2 in the figure). The latter is surrounded by a reaction chamber or by the cathode ray tube 1

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should be possible

27710

The production of sublimated films ... S/120/61/000/003/022/041  
E194/E155

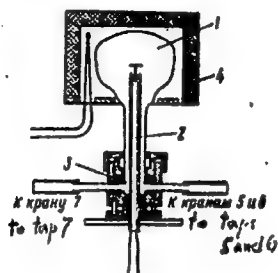
to design automatic equipment for producing sublimated films for cathode ray tubes.

There are 1 figure, 1 table and 10 references: 7 Soviet and 3 non-Soviet. The English language references read as follows:

Ref.4: F. Williams, J. Opt. Soc. America, 1947, 37, 302.

Ref.8: F.S. Studer, D.A. Cusano. J. Opt. Soc. America, 1955, 45, 493.

SUBMITTED: May 12, 1960



Card 3/3

GORBACHEV, S.V.; SYTILIN, M.S.

Study of the kinetics of hydroquinone oxidation with the aid of a redoxystat. *Izv.vys.ucheb.zav.; khim.i khim.tekh.* 4 no.1:155-157 '61. '61. *Izv.vys.ucheb.zav.; khim.i khim.tekh.* 4 no.4:155-157 '61. (MIRA 14:6)

1. Moskovskiy khimiko--tekhnologicheskoy institut imeni D.I. Mendeleyeva, kafedra fizicheskoy khimii.  
(Hydroquinone) (Oxidation-reduction reaction)

SYTILIN, M.S.; GORBACHEV, S.V.

Iodination kinetics of acetone studied by means of a redoxistat.  
Izv.vys.ucheb.zav; khim.i khim.tekh. 4 no.5:755-759 '61. (MIRA 14:11)

1. Moskovskiy khimiko-tekhnologicheskoy institut imeni Mendeleyeva,  
kafedra fizicheskoy khimii.  
(Acetone) (Iodination)



SVIL'N, N.O.

Circuit of a redoxistor with continuous proportioning of reagent for the synthesis of some substances and the simultaneous study of the kinetics of corresponding reactions. (Zhur. fiz. khim. 38 no.23512-520 1961. (MIRA 12:8)

2. Moskovskiy institut razvedki khimicheskoy armii VLS-khannova.

SYTILIN, M.S.

Kinetics of the reaction between hydrogen peroxide and potassium iodide in a sulfuric acid medium with the aid of a redoxystat. Zhur. fiz. khim. 39 no.3:573-576 Mr '65. (MIRA 18:7)

1. Moskovskiy institut narodnogo khozyaystva imeni Plekhanova.

1. SYTIN, B.
2. USSR (600)
4. Cotton-Picking Machinery
7. Modernizing the SKhM-48 cotton picker, Khlopkovodstvo, No. 10, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

SYTIN, G.N.

Individual approach to students in school workshops. Politekh.  
obuch. no. 6:14-19 Je '58. (MIRA 11:6)  
(Manual training)

SYTIN', I. Ya.

PA 20T93

USSR/Radio

Television - Receivers

Television - Apparatus

"Construction of a Television Receiver," I. Ya.  
Sytin, 4 pp

"Radio" No 2

A television set must have a radio receiver for  
televised signals, a rectifier unit, a synchronizing  
unit, television tube (kinescope), and a means of  
power-feed to the screen and the tubes. Short  
description of each.

20T93

SOV/138-59-4-12/26

AUTHOR: Sytin, K.

TITLE: A New Vulcanizing Press for Rim Beads ( Novyy press-vulkanizator dlya obodnykh lent)

PERIODICAL: Kauchuk i Rezina, 1959, Nr 4, pp 44-45 (USSR)

ABSTRACT: Rim beads for heavy tyres are normally pressed in a two part mould using a curing bag. It is found that the profile is not uniform and the curing bag frequently fails and is costly in replacement, apart from the cost of a high rate of scrap work and material. The three part press-mould, illustrated, enables the curing bag to be eliminated and is automatic in operation. The three steam heated mould sectors close radially inwards, along fixed piston rods which act as guides, onto a central steam jacketed mandrel which forms the inner part of the mould. The mould sector cylinders are fed hydraulically or pneumatically through the fixed piston rods.

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Heating steam to the sectors is supplied through swivel

SOV/138-59-4-12/26

#### A New Vulcanizing Press for Rim Beads

joints. The pressure in the mould actuating cylinders is controlled by diaphragm valves. The blank rim ribbon is mounted on the heated mandrel and the three steam heated mould sectors are closed. The press opens automatically ~~at the end of the vulcanization period~~, and this period is shorter than with conventional presses because of better heat transfer. A more uniform surface is obtained on the rim bead and considerable savings are claimed from experience in the operation of two such presses installed at the Voronezh Tyre Factory since 1958. ~~Six additional~~ presses will be installed at the same factory.

There is 1 illustration.

ASSOCIATION: Voronezhskiy shinnyy zavod ( Voronezh Tyre Works)

Card 2/2

LUR'YE, M.I., kand.tekhn.nauk; ALESHIN, V.V.; SYTIN, K.Yu.

Device for recording instantaneous fuel consumption. Avt.  
prom. no.1:35-36 Ja '60. (MIRA 13:5)

1. Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni  
nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut.  
(Automobiles--Fuel consumption--Measurement)



LUR'YE, M. I., kand. tekhn. nauk; SYTIN, K. Yu.

Determining characteristics of a hydraulic torque converter  
under starting conditions during the test of automobiles on a  
stand. Avt. prom. 28 no.9:12-16 S '62. (MIRA 15:10)

1. Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni  
nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut.

(Automobiles---Transmission devices)

SYTIN, K.Yu.

Calculating the speeding-up of a motor vehicle having a hydro-mechanical transmission. Avt.prom. 29 no.3:20-23 Mr '63.

(MIRA 16:3)

1. Gosduarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut.  
(Motor vehicles--Dynamics)

CA 20

The influence of grinding and of thorough mixing of the raw materials on the course of the process of manufacture of portland cement. M. P. Sytin. *Tsiment S*, No. 9-10, 34-9(1937); *Chem. Zentr.* 1938, II, 382-3.—The usual general methods of pulverizing and mixing of the raw slurry for the manuf. of cement were tested on a Russian raw material and some suggestions are given on the treatment of similar materials. Consideration of the individual characteristics of any such material is emphasized. M. G. Moore

ASAC SLA METALLURGICAL LITERATURE CLASSIFICATION

| PROCESS AND PROPERTIES INDEX  |  |  |  |  |  |  |  |  |  |  |  |  |                    |  |  |  |  |  |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|--|--|--|--|--|--------------------|--|--|--|--|--|--|--|--|--|--|--|--|
| 1ST AND 2ND ORDERS  |  |  |  |  |  |  |  |  |  |  |  |  | 3RD AND 4TH ORDERS |  |  |  |  |  |  |  |  |  |  |  |  |
| <p>Effect of a rapid cooling on cement clinker obtained in rotary kilns. M. P. Sytin. <i>Tsvetmet</i> 6, No. 2, 22-8 (1938).—Rapidly cooled portland-cement clinker taken from both the sintering and cooling zones has in periods of 4, 7 and 28 days better mechanical properties than that slowly cooled in the usual way. This is especially evident for 1:3 samples. It has a lower vol. weight and is more brittle. The changes in structure and compn. that take place on cooling have no evident effect on the microstructure. It is concluded that the oxidation process in quickly cooling clinker is incomplete and does not favor the complete transformation of iron oxides to ferric oxide on account of a deficiency of oxygen in the kiln. W. F. S.</p> |  |  |  |  |  |  |  |  |  |  |  |  |                    |  |  |  |  |  |  |  |  |  |  |  |  |
| <p>ASB SLA METALLURGICAL LITERATURE CLASSIFICATION</p>  |  |  |  |  |  |  |  |  |  |  |  |  |                    |  |  |  |  |  |  |  |  |  |  |  |  |